

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A disk drive ~~for perpendicular magnetic recording,~~ comprising:

a disk medium ~~configured to have~~ including a substrate, a magnetic recording layer and a soft magnetic layer interposed between the substrate and a the magnetic recording layer for recording data and a the substrate; and

a magnetic head ~~configured to have~~ including a read head element for detecting a magnetic field from the magnetic recording layer and a shielding member members to shield the read head element, over the disk medium, the read head element being configured to detect a recording magnetic field from the magnetic recording layer and the shielding member being configured to shield the read head element,

~~wherein a resultant structure is configured to~~ parameters are set for the disk medium and the magnetic head such that suppress a strength of a magnetic field strength which adversely affects applied to the read head element from the soft magnetic layer is reduced to a value smaller than under a magnitude of a magnetic disturbance field applied in a thickness direction of the disk medium.

2. (Currently Amended) The A disk drive according to claim 1, further comprising a system for a perpendicular magnetic recording, ~~wherein the disk medium is comprised of a double-layered recording medium capable of effecting a magnetic recording of a perpendicular magnetic system and the magnetic head configured to include includes a~~ write head element to allow a the perpendicular magnetic recording operation to be performed on the disk medium ~~by a perpendicular magnetic system.~~

3. (Currently Amended) The A disk drive according to claim 1, wherein the read head element is provided, as a constituent element of the magnetic head, in a form separate from the write head element for effecting magnetic recording on the disk medium, the read head element including includes a magnetoresistive element arranged between ~~such the~~

shielding members and wherein the magnetic head includes a write head element to allow a perpendicular magnetic recording operation to be performed on the disk medium, the write head element being separate from the read head element.

4. (Currently Amended) The A disk drive according to claim 1, wherein the read head element includes a magnetism-detection element ~~comprised of~~ including a giant magnetoresistive element.

5. (Currently Amended) ~~A disk drive for perpendicular magnetic recording;~~
~~comprising:~~ The disk drive according to claim 1, wherein

~~a disk medium configured to have a soft magnetic layer between a magnetic recording layer for recording data and a substrate and capable of effecting a perpendicular magnetic recording; and~~

~~a magnetic head configured to have a read head element and a write head element in a separate form over the disk medium, the read head element being configured to detect a recording magnetic field from the magnetic recording layer and be shielded by a shielding member and the write head element being configured to effect a perpendicular magnetic recording, wherein a resultant structure is such that, in order to suppress a magnetic disturbance which is applied in a perpendicular direction corresponding to a thickness direction of the disk medium from adversely affecting the read head element with the magnetic head set over the disk medium, that is, suppress a magnetic disturbance within an allowable range, the parameters include a the thickness of the soft magnetic layer, the a distance from one of such the shielding members to another one of the shielding members the other with the read head element in arranged between said one and said another one of the shielding members, and the a spacing distance from a surface of the soft magnetic layer to a proximal end of the magnetic head are all set.~~

6. – 7. (Cancelled).

8. (Currently Amended) ~~A disk drive for perpendicular magnetic recording,~~
~~comprising:~~

~~a disk medium configured to have~~ having a substrate, a magnetic recording layer and a soft magnetic layer interposed between the substrate and a the magnetic recording layer ~~for recording data and a the substrate; and~~

a magnetic head ~~configured to have~~ having a read head element for detecting a magnetic field from the magnetic recording layer and a shielding member members to shield the read head element,

wherein ~~a resultant structure is configured~~ parameters are set for the disk medium and the magnetic head to satisfy a relation

$$tg(\mu - \pi^4 (1 - \exp(-\pi t/g))) < 2\pi d(d+t) \text{ where}$$

t: the thickness of the soft magnetic layer;

μ : the permeability of a direction perpendicular to the surface of the soft magnetic layer when an influence of a diamagnetic field is removed;

g: ~~the~~ a distance from one of such the shielding members to another one of the shielding members the other shielding member with the read head element is disposed between said one and said another one of the shielding members; and

d: ~~the~~ a spacing distance from the surface of the soft magnetic layer to a proximal end of the magnetic head.

9. – 11. (Cancelled).

12. (New) The disk drive according to claim 8, wherein the magnetic head includes a write head element to allow a perpendicular magnetic recording operation to be performed on the disk medium and further comprising a system for a perpendicular magnetic recording.

13. (New) The disk drive according to claim 8, wherein the read head element includes a magnetoresistive element arranged between the shielding members and wherein the magnetic head includes a write head element to allow a perpendicular magnetic recording operation to be performed on the disk medium, the write head element being separate from the read head element.

14. (New) The disk drive according to claim 8, wherein the read head element includes a magnetism-detection element including a giant magnetoresistive element.